

---

## Chapter Eight

### ON-SITE SEWAGE DISPOSAL

---

#### Summary of Findings

1. *The Texas Department of Health's strategy of delegating regulatory authority to local governments has been an effective one.*
2. *Although effective enforcement depends on the cooperativeness of alleged violators, agency officials say that court action, when necessary, is normally a strong tool for obtaining compliance.*
3. *While some agency officials downplay the extent and significance of potential pollutant loadings from failed septic systems, they agree that the issue still needs more study.*
4. *Public sewage collection and treatment is unlikely in the sparsely-populated coastal portions of the Christmas Bay watershed.*

Brazoria County Health Department officials are satisfied with their legal authority to regulate on-site sewage disposal systems -- or septic tanks -- as an "authorized agent" of the state. The County adheres strictly to the model regulatory guidelines developed by the Texas Department of Health. According to TDH officials, all of the counties in the vicinity of Galveston Bay, including Brazoria, have enacted effective regulatory programs that rank among the best in the state. As a result, the design, siting and long-term maintenance of new on-site systems is not a significant problem in these areas. TDH is also satisfied that older systems are being effectively monitored and problems addressed as they occur. The greatest potential problem is the impact of system overflows during extended periods of heavy rainfall, although these events happen only occasionally.

While on-site sewage disposal was identified as one of a handful of priority management concerns for the Christmas Bay Coastal Preserve, input from involved agencies during the course of this study indicated that this activity is not a significant pollution source compared to other more troublesome sources, is reasonably well regulated, and does not warrant this level of attention. However, the reason that this area of regulation was

chosen for further scrutiny is that on-site sewage disposal is one of the most evident human impacts in an area as sparsely populated and relatively undisturbed as the Christmas Bay watershed. Thus, proper management of on-site systems takes on an importance in this area that it probably would not in others, especially since Christmas Bay was designated as a Coastal Preserve because of its remarkably pristine condition.

### **Action Recommendations**

**Action:** *Brazoria County should increase public awareness of potential problems with on-site sewage disposal systems, the warning signs of failing systems, and the appropriate County agency and phone number to call in such situations. This could be accomplished through a County-sponsored insert in local utility bills or tax statements.*

Involved Agencies:

- Brazoria County Health Department
- Cities
- Local Utilities

Rationale: The current management framework for on-site sewage disposal systems tends to be reactive since it relies on citizen complaints, inter-agency referrals, and informal staff monitoring of operating systems to detect pollution problems. As a result, the effectiveness of this approach depends on the prompt and efficient identification and repair of malfunctioning systems. The County is proud of its citizens' concern for the local environment, so it should try to enlist them as more active partners in local pollution control. But residents need to be reminded of who and where to call with their complaints. An informational insert of this type could also be used to raise local awareness of Christmas Bay's Coastal Preserve status and other potential threats to the Bay.

**Action:** *Interested agencies, perhaps under the lead of the Texas Department of Health, should explore the possibility of studying a typical on-site disposal system in a critical location in or near the Christmas Bay Coastal Preserve.*

Involved Agencies:

- Texas Department of Health
- Brazoria County Health Department
- Texas Water Commission
- other interested agencies

Rationale: A focused, in-depth study of this sort would allow the management agencies to specify the potential problems and impacts of on-site sewage disposal in the Christmas Bay environment. Those involved could apply existing research and

knowledge of septic operation to the particular physical aspects of the Christmas Bay watershed. Perhaps an agency more directly concerned with the impacts, such as the Texas Water Commission or the Texas Parks and Wildlife Department, would be a more appropriate lead agency. Aside from the research benefits of such a project, this would also facilitate better communication and interaction between the concerned agencies.

**Action:** *The Texas Department of Health and the Brazoria County Health Department should explore the feasibility of conducting additional scheduled inspections of on-site systems in the immediate vicinity of the Christmas Bay Coastal Preserve.*

Involved Agencies:

- Texas Department of Health
- Brazoria County Health Department

Rationale: The designation of Christmas Bay as a Texas Coastal Preserve indicates that it is a valuable natural area worthy of extraordinary protection. While this may imply a need for special management efforts unique to the preserve area, it should also lead to additional effort under existing regulatory programs that contribute to the Bay's protection. The involved agencies should determine whether additional follow-up inspections are warranted at some other interval beyond the three-year site visit, such as the seventh or tenth year of a system's operation.

**Action:** *The Texas Department of Health should determine whether there is a need for assistance mechanisms, such as direct funding or contributed services, to aid those system owners who cannot afford to repair or replace a failing or older on-site system.*

Involved Agencies:

- Texas Department of Health
- Brazoria County Health Department

Rationale: The aim of the regulatory program is to insure the prompt repair of any malfunctioning systems that may be polluting local waters. Punitive fines only defeat this purpose if a landowner cannot afford the costs of compliance. TDH should consult with BCHD to determine whether cost considerations are an existing or potential obstacle to compliance in rural portions of Brazoria County.

**Action:** *Technical assistance programs should be targeted toward the cities in the Christmas Bay watershed to enhance their management of future on-site sewage disposal systems.*

- Involved Agencies:
- Texas Department of Health
  - Brazoria County Health Department
  - Cities
  - Houston-Galveston Area Council

Rationale: Because of their superior knowledge of their own local area, city officials and staff can contribute to the critical process of planning for future development. Even though a community may not welcome the thought of regulating private land use, cities can prepare themselves for future service needs by sponsoring studies of local soils, hydrology, and other factors that might limit certain types of development -- or the feasibility of essential infrastructure such as on-site sewage disposal. Appropriate agencies should encourage and assist preliminary local planning, environmental inventories, and development forecasting efforts. This type of preparatory work will also aid in the processing of on-site disposal system permits.

**Christmas Bay Management Framework:  
ON-SITE SEWAGE DISPOSAL**

AGENCY	AUTHORITY	POLICY	STRATEGY	ACTORS
TDH	1. Texas Health & Safety Code, Chapter 336	1. Texas Health & Safety Code: - statement of public policy  2. Texas Board of Health: - statement of agency policy in Texas Administrative Code	1. Rules for permitting and monitoring of on-site sewage disposal systems  2. Development of minimum state standards for on-site systems  3. Rules for registration of system installers  4. Guidelines for enforcement and complaint resolution  5. Administrative procedures for delegation of TDH permitting and enforcement authority to local governments  6. Technical assistance to local "authorized agents"  7. Rules for annual review and evaluation of local programs by Region office	1. TDH Water Hygiene Division  2. Region 4 Office (Houston)

**Christmas Bay Management Framework:  
ON-SITE SEWAGE DISPOSAL**

AGENCY	AUTHORITY	POLICY	STRATEGY	ACTORS
BCHD	<ol style="list-style-type: none"> <li>1. Texas Health &amp; Safety Code, Chapter 336: - "authorized agent" of the state</li> <li>2. Brazoria County On-Site Sewage Disposal System Regulations</li> </ol>	<ol style="list-style-type: none"> <li>1. Brazoria County Commissioners Court</li> </ol>	<ol style="list-style-type: none"> <li>1. Administrative review of applications for on-site sewage disposal permits</li> <li>2. Site inspections during system installation</li> <li>3. Third-year follow-up inspections of operating systems</li> <li>4. Informal field monitoring of operating systems</li> <li>5. Investigation of citizen and inter-agency complaints</li> <li>6. Enforcement action in local JP Court against violations</li> </ol>	<ol style="list-style-type: none"> <li>1. BCHD Environmental Health Section (Angleton)</li> </ol>

## **Management Concern: ON-SITE SEWAGE DISPOSAL**

### **Background**

On-site sewage disposal systems continue to provide an economical alternative to public sewer systems in rural and sparsely populated areas. Soil absorption systems are the most widely-used method of on-site disposal. The Environmental Protection Agency has credited these systems with providing vital environmental sanitation in rural areas.

However, environmental concerns arise due to the excessive use of on-site systems in unsuitable areas. Water quality agencies worry about potential ground and surface water contamination, while public health agencies must guard against sanitary nuisances and the potential for disease transmission. Effective regulation of these systems is especially important in an area such as the Christmas Bay watershed where public treatment systems will remain impractical and unlikely for many years.

### **Nature of the Problem at Christmas Bay**

With only a limited number of private dwellings in the immediate vicinity of Christmas Bay, the use of on-site disposal systems is not very extensive in this critical area. On-site systems are more widespread farther inland as urban development increases moderately near town centers such as Danbury, Angleton, Richwood and Lake Jackson. Since there are no municipal treatment facilities in this area, every dwelling unit is either served by an individual disposal system or, in isolated areas, has no on-site provisions for waste disposal.

Contrary to concerns expressed by some, Brazoria County Health Department staff say that the physical conditions within the Christmas Bay watershed are not ill-suited for septic systems. According to the staff, on-site disposal systems work quite well in the area, provided that they are installed and operated in accordance with state standards. However, it is the potential for system failures near tributaries leading to Christmas Bay that is a concern.

Pollution concerns arise due to the nature of the coastal area, with its numerous man-made ditches and natural streams that can carry pollutants into the heart of the estuary system. Concerns have also been expressed that the extent of on-site disposal system use -- and potential pollution impacts -- are not known. The Texas Department of Health's Shellfish Sanitation Division takes particular interest in pinpointing septic tank use along the coast. Chronic pollution can affect the purity of nearby oyster reefs and even lead to closures of certain harvesting areas. One TDH official recalled a case several years ago where a small, isolated cluster of dwellings that had never been visible from the road or from TDH boats was finally spotted by chance on aerial photographs of the area. The dwellings happened to be on septic systems, and these systems were failing and leaching

waste directly into the coastal waters near valuable oyster reefs. While TDH considers this an isolated incident, it continues to rely on local governments to uncover "tucked-away" dwellings such as these that may be contributing to coastal pollution. Brazoria County officials say that recent surveys of the coast by boat leave them confident that they have identified all existing on-site disposal systems in the area.

Brazoria County staff also hope to dispel the perception that there may be numerous aging, failing on-site systems in the area. They say that problem systems can be quickly detected and are gradually repaired or replaced. Systems in existence prior to implementation of the TDH regulations do not require a permit, but the County will intervene if an older system malfunctions or causes pollution problems in nearby streams or surface waters. The County approach is to not interfere with "grandfathered" systems that are operating without problems. The status of an older system can also be checked when major repairs or alterations are proposed for existing structures on the property.

## **Key Management Agencies**

### ***Texas Department of Health (TDH)***

The Department of Health's Water Hygiene Division, aside from its primary responsibility for safe drinking water and reliable public water systems, implements state laws regarding on-site sewage disposal systems. The Division is housed within TDH's Bureau of Environmental Health. The Bureau, in turn, is supervised by the Associate Commissioner for Environmental and Consumer Health Protection. The Associate Commissioner is one of five who report to the Commissioner of Health, TDH's top official. The Department is guided by the 18-member Texas Board of Health, which is charged with protecting and promoting the health of the people of Texas. The Board adopts policies and rules to direct the agency's programs. The Christmas Bay watershed is located within TDH Region 4.

Chapter 336 of the Texas Health and Safety Code contains the statutory provisions for TDH regulation of on-site sewage disposal systems. This chapter states that it is the public policy of the state to "eliminate and prevent health hazards by regulating and properly planning the location, design, construction, installation, operation and maintenance of on-site sewage disposal systems." The code then empowers TDH to issue permits, monitor compliance, require and undertake registration of system installers, investigate complaints, and seek penalties for violations. The code also specifically defines "on-site sewage disposal systems" as those treatment devices which produce less than 5,000 gallons of waste each day and only handle sewage produced on the site where the system is located. Treatment and disposal systems which go beyond these limitations are regulated by the Texas Water Commission (TWC). Under the statute, no person may construct, alter, repair, extend or operate an on-site system without first obtaining a permit and approval of construction plans. However, there is an exemption for systems serving a single residence on tracts of 10 or more acres, provided that the field line or sewage disposal line is at least 100 feet from any property line. But



TDH may intervene if the effluent from such a system is detected outside the 100-foot limit, is creating a nuisance, or is found to be polluting groundwater.

In its administrative rules, TDH states that it is agency policy to "assist the state's citizens in obtaining safe and adequate on-site sewerage facilities (OSSF); to minimize the exposure of Texas citizens to the disease transmission potential of human and domestic waste; to minimize the contamination of drinking water supplies and hazards to the state's recreational areas; and to reduce the potential for ground and surface water pollution." TDH has aggressively sought to delegate responsibility for OSSF regulation to local governments, as it is enabled to do under the Health and Safety Code. TDH's regional offices are charged with promoting the agency's "localization" policy, especially among interested county governments. Brazoria County requested delegation during the mid-1980s, when the state's on-site disposal system regulations were still administered by the Texas Water Commission. Once a county such as Brazoria completes the necessary administrative procedures for delegation and adopts disposal system rules which reflect TDH's minimum standards, then it is recognized as an "authorized agent" of the state Department of Health. Authorized agents have the same powers as TDH to implement and enforce OSSF regulations. Brazoria County facilitated its delegation by adopting the model OSSF rules drafted by TDH.

After delegation, TDH plays only a general supervisory and oversight role, as well as providing technical assistance to local governments as needed. Authorized agents take the lead in all aspects of the program, but TDH can become involved when requested or as it sees fit. The Health and Safety Code requires TDH to complete an annual review of local regulatory program performance and compliance with state guidelines. TDH is not allowed to undertake a comprehensive evaluation of a local program more than once a year, and it has the option of doing multi-year reviews in cases where the local entity maintains a solid performance record. However, TDH staff still must submit an annual report to the Texas Board of Health on the operations of each local program. The major areas of concern in TDH's reviews are:

- the efficiency and adequacy of permit application processing
- the effective resolution of nuisance complaints, which TDH considers a high-priority activity of its authorized agents
- the effective and consistent enforcement of TDH's minimum OSSF standards

If TDH's annual review uncovers unacceptable local performance, the department may hold a hearing to determine whether the local entity should forfeit its "authorized agent" designation. If so, TDH may select another local entity or resume direct management of the local program.

### ***Brazoria County Health Department (BCHD)***

The department's Environmental Health Section administers the County's on-site sewage disposal system regulations. This entails processing applications for disposal system permits, visiting sites during system installation, and investigating any problems with operating systems. Only a portion of staff time and resources is devoted to this task as the department also is responsible for routine health inspections at restaurants, grocery stores, junkyards and similar sites. The department currently has a Director and six investigators, including its own in-house sanitary engineers. The staff estimate that they devote roughly one-third of their time to septic system matters. The department may receive a handful of permit applications for review on a typical day, and the remainder of the staff's time is spent responding to and investigating complaints about malfunctioning systems.

According to the staff, the chief objective of the County's permitting process is to insure that a proposed on-site system can be installed and operated in accordance with minimum state standards. If there are any criteria that the system cannot meet, such as a minimum acceptable percolation rate, then a permit will not be issued and on-site sewage treatment will be required in conjunction with any future development. Ever since the Brazoria County Commissioners Court adopted TDH's model OSSF rules, the department has strictly followed state guidelines for regulation of septic systems. All new development in the County which will not have access to sewage treatment facilities, whether municipal or private, must receive a building permit *and* an on-site disposal system permit prior to construction. In the case of subdivisions of land, a disposal system permit must be issued prior to final plat approval.

The department's administrative review of permit applications is performed on the spot when an applicant visits the office. The application form is a legal document which must be notarized prior to submission. Once received, it is checked by BCHD staff to insure that all guidelines have been followed. To facilitate the review, the form requests information on the acreage and dimensions of the building site, the proposed land use, and such indicators of anticipated waste flow as the number of bedrooms in a dwelling, the number of urinals and commodes in a commercial facility, or the number of washing machines in a private or commercial building. The application also requires a diagram of the system design and its proposed location on the site. In addition, the designated installer must be a state-licensed firm, as required by TDH rules. If everything is in order, the staff have signing authority to approve or disapprove an application as soon as the review is completed. Following approval, it is the installer's responsibility to notify the department when the site has been prepared for installation. A BCHD staff member must be present at the site to inspect the installation work and materials before the system is placed in the ground. The staff also must visit a second time when the final soil cover has been applied.

The County permit allows the applicant six months to complete the installation or else file a new application. After installation, BCHD staff pay a final visit to each site three years after issuance of the disposal system permit. The property owner is given 10 days'

notice of this required site inspection, and a 30-day compliance period is arranged if any operational problems are detected. There is no routine inspection schedule beyond the three-year visit. The staff rely on their own visual, "drive-by" inspections and any complaints they receive to identify malfunctioning systems.

The County notifies owners of failing systems and instructs them that they must correct the problem promptly to avoid enforcement action. In cases where an owner is not cooperative or reasonably quick to respond, the County may file a complaint with the local Justice of the Peace Court and request that the matter be adjudicated. A cooperative owner is typically given a compliance schedule that, if met, will result in only a nominal fine. Those owners unwilling to take appropriate action face fines ranging from \$10 to \$200 for each day that the violation continues. The ultimate penalty assessed by the Justice of the Peace depends on the severity of the violation and the good faith efforts of the system owner.

### **Management Evaluation Findings**

1. *The Texas Department of Health's strategy of delegating regulatory authority to local governments has been an effective one.*

In addition to overcoming TDH's own resource limitations, the "localization" effort has provided a welcome opportunity for local governments to administer a state-mandated program themselves. It also has enabled county governments to take on an expanded role in local environmental protection. Counties have risen to the challenge, according to TDH officials, and have been very active under the program. TDH can always intercede should a county not fulfill its obligations as an "authorized agent."

As part of the delegation procedure, TDH looks at the adequacy of funding for the particular county agency that will assume the regulatory program. Specifically, TDH requires that funding be available "at a level consistent with anticipated growth and activity levels within the proposed jurisdiction." The department also assesses the county's overall commitment to the program, its enforcement plans, and its proposed methods for investigating and solving problems. The fact that the county must request delegation from TDH also enables local governments to demonstrate their readiness for the program.

Brazoria County Health Department staff confirm that their County was very enthusiastic about receiving regulatory authority from the state Board of Health. They say that the County has extensive grass roots support for its determination to keep local bays and streams fishable and limit all forms of pollution within Brazoria. The "localization" approach also capitalizes on local agency knowledge of an area's unique problems, pollution impacts, and concerns, such as the dependence of many Brazoria County coastal residents on the area's commercial and recreational fisheries. County staff say that their program is running smoothly, staffing is

sufficient, and time is not a factor since administrative reviews of permit applications are done on the spot.

2. *Although effective enforcement depends on the cooperativeness of alleged violators, agency officials say that court action, when necessary, is normally a strong tool for obtaining compliance.*

Agencies which regulate on-site sewage disposal systems in Texas are not able to assess administrative penalties, as can their peers in solid waste and point source discharge regulation. But agency staff say that such measures are usually not necessary since problem cases can quickly be brought before the local Justice of the Peace Court. This is another advantage of locally-administered programs, plus the fact that agency staff can work directly with individuals to help them bring their systems back into compliance.

The staff say that they can soon judge whether a violator will be cooperative or belligerent toward the program. And although the enabling statute does not allow the agency to enter private property without the owner's permission, the staff say that typical signs of system failure, such as surfacing of septage or bleeding of effluent into a nearby ditch, are obvious from a distance. If the owner of the malfunctioning system will not cooperate, the staff can file on him immediately to avoid any conflicts or delay in resolving the pollution problem.

The ultimate enforcement tool is the staff's ability to request that the Justice of the Peace impose daily fines for ongoing violations. This action immediately gets the attention of the system owner and encourages swift settlement of the matter. The range for the fine also gives the Justice of the Peace some flexibility since he can adjust the fine upward or downward based on the individual's performance.

In the most extreme cases, both TDH and the authorized agent have the authority under the Health and Safety Code to declare an emergency because of threats to public health or safety. An emergency order enables either agency to suspend the installer's registration and take direct action to regulate the problem system.

3. *While some agency officials downplay the extent and significance of potential pollutant loadings from failed septic systems, they agree that the issue still needs more study.*

Texas Department of Health staff say that potential nonpoint source pollution from on-site sewage disposal systems is an overriding concern of the regulatory program. However, the agencies involved find it difficult to document the contribution of septic seepage to ground or surface water pollution.

Nevertheless, the existing regulatory framework is intended to maximize the detection of pollution from on-site disposal systems. As part of their delegated duties, local governments are expected to keep a log of nuisance complaints that

they receive and actions they take to resolve them. Other agencies with field staff in the area, such as the Texas Water Commission, also refer complaints and problems to the County staff. The County works with larger cities that have their own health inspectors, and mutual agreements with smaller cities allow County staff to provide assistance there. In the Christmas Bay watershed, the County has primary responsibility for pollution incidents since most of the area is unincorporated.

While this remains a reactive system, formal procedures (complaint response, third-year inspections) and informal monitoring are in place to detect system failures. As an added safeguard, TDH is also required to record and investigate any citizen complaints that it receives concerning a local government's performance under the program.

4. *Public sewage collection and treatment is unlikely in the sparsely-populated coastal portions of the Christmas Bay watershed.*

Expectations are that this will remain a rural, low-density area for many years to come. Public treatment would be uneconomical under these circumstances. Aside from the practical limitations, the transition to a public system might require the introduction of direct point source discharges into Christmas Bay, something that has been hotly opposed by local residents in the past. This combination of factors will probably dictate continued reliance on on-site treatment devices.